

A Rationale for Replacing High Stakes Exams with Multiple-Attempt Low-Stakes Quizzes

Natalie Parker, Director of CETL and Distance Education, Texas Wesleyan University

Why It Works

The “testing effect”, in which students recall more information about a topic after testing than after re-reading the material, was first reported by Abbott in 1909. Subsequent studies have confirmed that repeated testing is an effective way for students to recall material (see Roediger and Karpicke, 2018 for an overview of the literature). In 2006, Roediger and Karpicke compared student recall of the information in a short essay among students who re-read the passage multiple times and/or answered short-answer questions about the essay. Studying by re-reading the passage benefited students who took a test about the material five minutes later. However, these students recalled significantly less after one week than did those who read the essay one time and took short-answer tests without feedback three times.

This and other studies raise some questions about common teaching and assessment strategies:

1. In a traditionally structured course, where students’ grades are determined by performance on 3 or 4 exams, is student output demonstrative of deep, long-term knowledge?
2. Are comprehensive end-of-semester exams “weeding out” students who have been given poor advice by instructors, advisors, and tutors to simply re-read their notes and texts?
3. Can we shift the onus of learning from being a “good student” to the instructor by encouraging the use of low-stakes repeated testing rather than occasional high-stakes exams?
4. If instructors provide learning activities and assessments that encourage long-term recall, might they begin to see other improvements in student performance?
5. Might repeated testing be used as a strategy to mediate the negative effects of grading?

Variations for using this type of online quizzing abound. Recommended quiz settings include:

- Pulling quiz questions from a pool to discourage students from memorizing the answer pattern
- Randomizing question order and answer order
- Creating unique questions or modifying those provided by publishers
- Applying a time limit to the quiz that precludes students from looking up most of the answers before the time runs out (the quizzes are open book, but the time limit forces students to be familiar with the material)
- Leaving the quiz open to students for a finite period of time (48 hours, one week, the duration of the unit)
- Indicating which questions have answered correctly or incorrectly
- Allowing an unlimited number of attempts on the quiz

Record the student’s highest grade on the repeated quiz.

Canvas Settings

[What options can I set in a quiz?](#)

[How do I create a quiz with a question group to randomize quiz questions?](#)

[How do I create a question bank in a course?](#)

Find help for all Canvas features at the [Canvas Instructor Guide](#)

Additional Notes

You can create this type of quiz using essay questions, as well. However, Canvas will not be able to grade those items for you. Students could compare their answers to sample responses provided in the feedback portion of the quiz and self-evaluate their preparedness. Benassi, et al. (2014), found that “preceding a multiple question with a[n ungraded] recall question on the same topic boosts performance on a major exam compared to questions that were quizzed with only multiple choice questions” (summary statement from notes to the author of this document on June 6, 2019).

References

Abbott E. E. (1909). On the analysis of the factors of recall in the learning process. *Psychol. Monogr.* 11, 159–177 10.1037/h0093018 [[CrossRef](#)] [[Google Scholar](#)]

Benassi, V. A., Tappin, E. M., Overson, C. E., Lee, M. J., O'Brien, E. J., Prudhomme White, B., Stiegler-Balfour, J. J., Hakala, C. M. (2014). Applying the science of learning: The cognition toolbox. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.). *Applying science of learning in education: Infusing psychological science into the curriculum*. Retrieved from the Society for the Teaching of Psychology web site: <http://teachpsych.org/ebooks/asle2014/index.php>

Khanna, M. (2015). Ungraded Pop Quizzes: Test-Enhance Learning Without All the Anxiety. *Teaching of Psychology*. 42(2): pp. 174-178.

Roediger, H. and Karpicke, J. (2018). Reflections on the Resurgence of Interest in the Testing Effect. *Perspectives on Psychological Science*. 13(2): 236-241.

Roediger, H. and Karpicke, J. (2006). Test-Enhanced Learning: Taking Memory Tests Improves Long-Term Retention. 17(3): 249-255.

Note: The 2018 overview of Roediger and Karpicke’s research (Reflections on the Resurgence on Interest in the Testing Effect) is a good starting point if you wish to learn more about the testing effect.

Revised to replace Blackboard with Canvas resources, Mary Ann Tobin, Schreyer Institute for Teaching and Learning, March 19, 2020.